UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK
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SHAW-NAE DIXON, THOMAS CASATELLI, JEANETTE RIVERA, NATALIA YUKUBOVA, CHRIS KING, ALISON MARCHESE, on behalf of AM, JM, and MMV (her minor children), WILLIAM MORRIS, GEORGE KABBEZ, MARY JOSEPHINE GENEROSO, SHAW NAE'S HOUSE, LLC, SALTY DOG RESTAURANT, LTD, PER TAVERN CORP. d/b/a THE KETTLE BLACK, CARGOSTORK PARTIES INC. d/b/a DO ME A FAVOR, and INDEPENDENT RESTAURANT OWNERS ASSOCIATION RESCUE, INC.,

Plaintiffs,

-against-

BILL DE BLASIO, in his official capacity as Mayor of New York City; and THE CITY OF NEW YORK,

Defendants.

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DECLARATION OF DR. JAY VARMA

21-cv-5090 (BMC)

I, JAY VARMA, MD, declare under the penalties of perjury, pursuant to 28 U.S.C. § 1746, as follows:

1. I am Mayor Bill de Blasio's Senior Advisor for Public Health, and, as of September 1, 2021, a Professor of Population Health Sciences at Weill Cornell Medical School.

2. After graduating magna cum laude with highest honors from Harvard University, I completed medical school, internal medicine residency, and chief residency at the University of California, San Diego School of Medicine. In 2001, I joined the Centers for Disease Control and Prevention ("CDC") Epidemic Intelligence Service, working on foodborne diseases. From 2003 to 2008, I served in Bangkok, Thailand, directing CDC's TB programs and research in

Southeast Asia. From 2008 to 2011, I served in Beijing, China, directing CDC's International Emerging Infections Program which assisted the Chinese government on infectious diseases. From 2011 to 2017, I served as the Deputy Commissioner for Disease Control at the New York City Department of Health and Mental Hygiene ("DOHMH"). From 2017 to April 2020, I served as the Senior Advisor to Africa's Centers for Disease Control and Prevention at the African Union in Addis Ababa, Ethiopia. I guided the creation of Africa's CDC, developing its strategy and supporting implementation of its public health programs, and authored the Africa CDC's continent-wide strategy for COVID-19 in Africa and critical policy documents on COVID-19 control measures. I have authored 138 scientific manuscripts, six essays, and one book. A retired Captain in the United States Public Health Service, I have been recognized as the U.S. Public Health Service Physician Researcher of the Year (2010) and Physician Leader of the Year (2017), and have received the two highest awards in the U.S. Public Health Service (Distinguished Service Medal, 2011; Meritorious Service Medal, 2018).

3. I submit this declaration in opposition to the instant challenge to the "Key to NYC" program, first established in Mayor Bill de Blasio's Emergency Executive Order ("EEO") No. 225, issued on August 16, 2021 and effective beginning on August 17, 2021. EEO No. 225 has been superseded, amended, and extended by subsequent emergency executive orders. The relevant operative language of Key to NYC is set forth in EEO No. 250 and is currently effective pursuant to EEO No. 258, dated October 4, 2021.

4. I am aware of the Emergency Executive Orders issued by Mayor de Blasio following the declaration of emergency by former New York State Governor Andrew Cuomo to address the threat that COVID-19 poses to the health and welfare of New York residents and visitors. These orders include Emergency Executive Order No. 98, which on March 12, 2020

declared a state of emergency in New York City that has continued since that time, as well as additional orders that were issued after the declaration of that state of emergency. Among other things, many of those subsequent orders mirrored orders that had been issued by former Governor Cuomo suspending many indoor activities in the City and State including, e.g., indoor dining, fitness and recreational activities. Over time, those restrictions were then gradually lifted.

5. EEO No. 206, whereby the Mayor allowed the resumption of outdoor activities beginning on June 1, 2021 and indoor activities beginning on June 14, 2021, reflected changes in the COVID-19 landscape, including the decrease in reported COVID-19 cases, hospitalizations, and deaths, the widespread availability of vaccines, and increased vaccination rates.

6. For the reasons discussed herein, the Key to NYC program, which directs that only vaccinated individuals work in or patronize certain establishments in which individuals gather for indoor dining, entertainment, and fitness, furthers the public health goals of increasing the number of vaccinated individuals in New York City.

BACKGROUND ON COVID-19

7. COVID-19 is a new, potentially severe, and sometimes fatal viral infection. The COVID-19 pandemic is unprecedented in its scope, affecting nearly every country in the world. It is a prodigious public health concern in its devastating health outcomes, both direct and indirect.

8. Our understanding of COVID-19 symptoms, transmission, effects on the body, risk factors for severe disease and treatment is evolving as we gain more experience with the disease and has expanded considerably since we first learned of the virus in late December 2019.

9. People with COVID-19 report a wide range of symptoms, ranging from mild, such as cough, sore throat and low-grade fever, to more serious, such as trouble breathing.

Because many of the symptoms are similar to other common illnesses, it can be difficult for an ill person to know whether they have COVID-19 or another sickness, such as a cold or the flu. Some people have no symptoms at all. In its most severe form, COVID-19 causes pneumonia, inflammation and damage to the heart and blood vessels, organ failure, and other complications that are sometimes fatal. Older adults, and people of any age, including children, who have serious underlying medical conditions are at higher risk for severe or fatal illness from COVID-19. Adults and children may also experience symptoms for many months after their acute illness has resolved, a phenomenon known as "long COVID" that, for some people, can be debilitating.

10. While there is still much to be learned about COVID-19, based on the information available, the virus most commonly spreads to people who are in close contact of a person who has COVID-19. "Close contact," as defined by New York State, is being within six feet of an individual for at least 10 minutes either consecutively or cumulatively. The virus is spread mainly by small particles produced by someone with the infection coughing, sneezing, singing, or talking. In indoor settings, the virus can also travel through the air and infect people who are much further than six feet away. It is also possible for people to become infected by touching a surface that has the virus on it, and then touching their eyes, nose or mouth with unwashed hands, though this is thought to be less common than other forms of transmission. There is significant evidence that people can transmit infection whether or not they have symptoms; while people with symptoms are likely more contagious than people without symptoms, the number of people infected, on average, by people without symptoms may be greater, because they continue to conduct activities with others and do not know to isolate themselves. Based on current knowledge, the time between virus exposure and the onset of illness (the incubation period) can range from 2 - 14 days with most people developing symptoms 4-6 days after exposure.

11. The reproduction number (called R_0 or R naught) is the average number of people to whom each infected person will spread the virus. It varies considerably by jurisdiction, because it depends on many factors such as the age and health of the population, the frequency, duration, and intensity of contact between people, the controls put in place to stop transmission, and pre-existing immunity from previous infection or vaccination. For the more recently prevalent Delta variant, the R_0 number is estimated to be 2 to 3 times greater than the original strain, indicating that it is far more infectious that the strain that caused widespread disease and death during New York City's first wave from March – May 2020.

12. Substantial scientific evidence indicates that transmission to multiple people, also known as "clusters" or "outbreaks," is more likely to occur in settings that are indoors and involve large numbers of people in close proximity.

13. The virus that causes COVID-19 remains prevalent in the United States and throughout the world, because there is no medication that can cure infection and the percentage of individuals who have been vaccinated globally and domestically is not sufficient to achieve high levels of population immunity.

14. Additionally, all viruses, including COVID-19, mutate because of errors in the process of replicating their genetic code. Some mutations can change the characteristics of a virus including its contagiousness (how easily one person spreads infection to another person), its immune evasion (how much it is able to infect people who have some immunity from prior infection or vaccination), and its virulence (how severe of an illness it causes). Most notably, almost all New York City cases are now primarily of the Delta variant, which, as noted above, is 2 to 3 times more contagious than the original strain.

15. Viruses only mutate when they are replicating in a human (or other animal) host. Therefore, the only way to prevent the emergence and spread of other more contagious strains of COVID-19 is to reduce the number of humans infected. By far, the safest and most effective way to do that is to increase vaccination rates.

COVID-19 TRANSMISSION IN NEW YORK CITY

16. COVID-19 is still spreading throughout the United States in many affected geographic areas, including the New York metropolitan region. There are currently significant outbreaks of COVID-19 in the United States, with health officials having reported over 43 million infections and over 700,000 deaths, as of October 4, 2021.[1]

17. In the spring of 2020, New York City was the epicenter of the COVID-19 pandemic in the U.S. and had one of the largest reported disease burdens in the world. At that time, there was a shortage of medical equipment, personal protective equipment, intensive care unit beds, and medical personnel.

18. While New York City is no longer experiencing the widespread crisis that marked the spring of 2020, community transmission remains an ongoing public health concern. The Centers for Disease Control and Prevention (CDC) reports that New York City is experiencing a high level of community transmission.[2] Over the last 28 days in New York City, there was an

[1] CDC COVID Data Tracker, available at: https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days (last visited Oct. 4, 2021).

[2] "High" community transmission indicates a county with 100 or more new cases of COVID-19 per 100,000 people in a seven-day period, or a county with 10% or more positive COVID-19 tests in a seven-day period. See CDC Covid Tracker, available at covid.cdc.gov/covid-data-tracker (last visited Oct. 4, 2021).

average of 1,292 confirmed new cases per day. [3] In fact, the current positivity rate in New York City is greater than it was this time last year.[4]

19. New York City must remain cautious to protect New Yorkers who are most susceptible to severe COVID-19 illness and death, as well as to prevent additional increases in transmission rates and/or the evolution of new variants, and to prevent the hospital system from becoming overwhelmed as it was in the spring of 2020.

CLOSURES AND RESTRICTIONS IN NEW YORK CITY

20. As has been seen throughout the pandemic, the incidence[5] of the virus in New York City (and in the rest of the nation) changes frequently, which requires immediate and flexible responses from public officials to reduce infections and mitigate the harm caused by infections. As the incidence of the virus fluctuates, and as the virus mutates, and we learn more about transmission and best ways to reduce transmission of the virus, City officials need to adjust policy to most effectively respond to changes in knowledge and circumstances.

21. New York City contends with a high ongoing risk of cases that are "imported" cases, because it is a center for domestic and international travel. Further, there are inherent risks associated with a large population living in a dense environment, including in residential congregate facilities and multi-generational housing, that make distancing difficult and increase the likelihood that an rise in transmission could quickly lead to a resurgence. For these reasons, New York City must remain vigilant due to the ongoing inherent risk.

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[3] See New York City Department of Health and Mental Hygiene ("DOHMH"), COVID-19 Data, Latest Data, available at: https://www1.nyc.gov/site/doh/covid/covid-19-data.page (last visited Oct. 1, 2021).

[4] https://github.com/nychealth/coronavirus-data/blob/master/trends/tests.csv.

[5] "Incidence" refers to the occurrence of new cases of disease or injury in a population over a specified period of time. See CDC Principles of Epidemiology in Public Health Practice, available at: cdc.gov/csels/dsepd/ss1978/lesson3/section2.html (last visited Sept. 22, 2021).

22. According to the CDC and all leading global health agencies, vaccination is the most effective tool to mitigate the spread of COVID-19 and protect against severe illness.[6] All three vaccines authorized by the FDA in the United States demonstrate high levels of protection against severe illness and death. While the exact level of protection varies depending on the population, variant, vaccine, and other factors, the cumulative weight of evidence from studies shows that, in real world conditions, all three vaccines are more than 90% effective at preventing severe illness and death.[7]

23. Overwhelmingly, COVID-19 illness, hospitalizations, and deaths are among people who are not fully vaccinated. Since January 17, 2021, when the first vaccinations in New York City started offering protection, unvaccinated persons are 4.9 times more likely to become infected with COVID-19 in NYC, 8.7 times more likely to be hospitalized, and 7.0 times more likely to die.[8]

24. Since July 2021, when the Delta variant of the COVID-19 virus became prevalent in New York City, the COVID-19 case rates and hospitalizations between vaccinated and unvaccinated people diverged widely, as the following charts demonstrate:[9]

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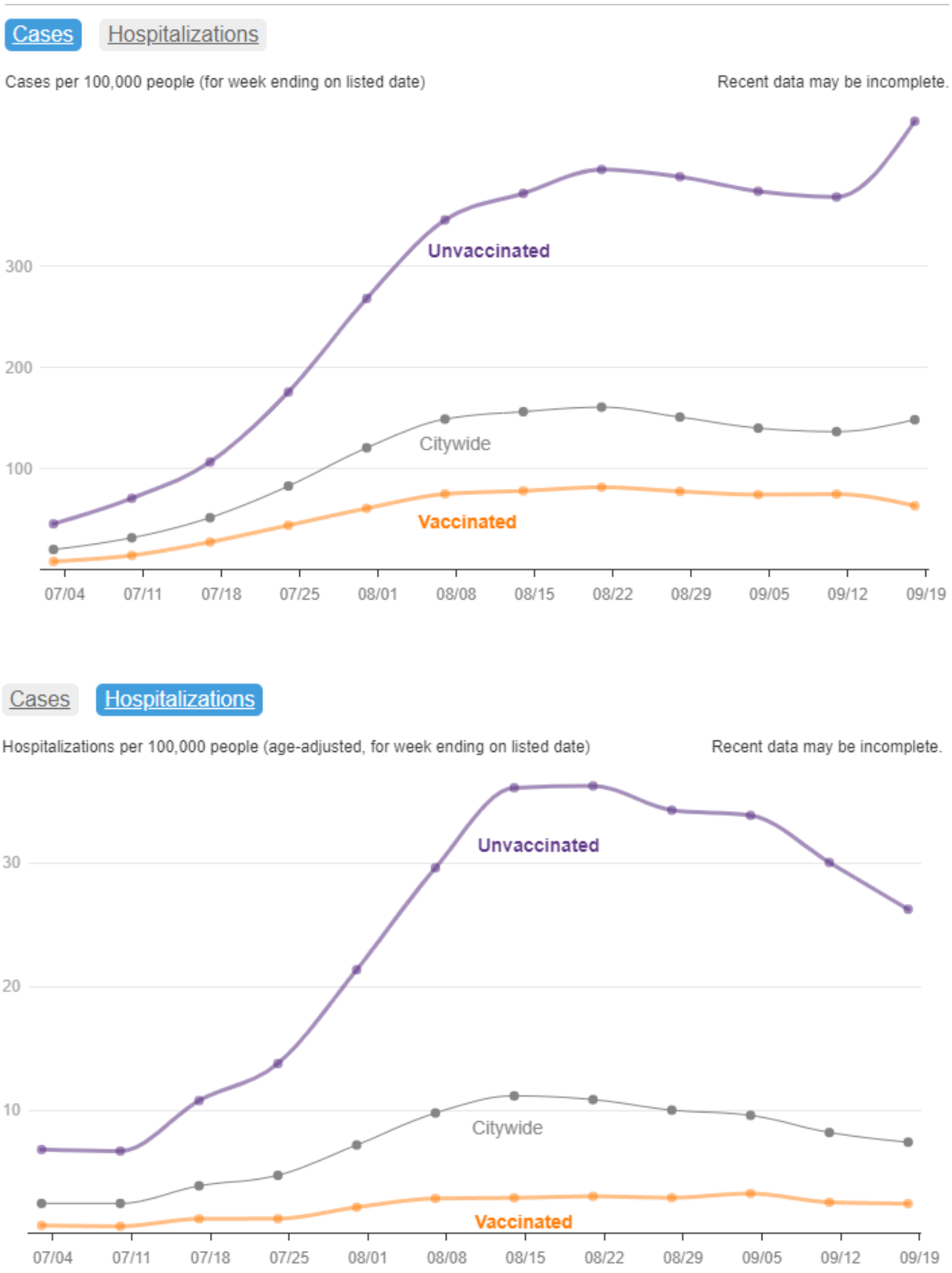
[6] CDC Website, COVID-19, Vaccines and Vaccination, available at: https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html (last visited Sept. 22, 2021).

[7] Id.

[8] See DOHMH,COVID-19: Data, Latest Data, available at https://www1.nyc.gov/site/doh/covid/covid-19-data.page#daily (last visited Oct.1, 2021).

[9] The charts are viewable online. See DOHMH,COVID-19: Data, Latest Data, available at https://www1.nyc.gov/site/doh/covid/covid-19-data.page#daily (last visited Oct. 1, 2021).


Cases
Hospitalizations
Cases per 100,000 people (for week ending on listed date)
Recent data may be incomplete.
300
200
100
Unvaccinated
Citywide
Vaccinated
07/04
07/11
07/18
07/25
08/01
08/08
08/15
08/22
08/29
09/05
09/12
09/19
Cases
Hospitalizations
Hospitalizations per 100,000 people (age-adjusted, for week ending on listed date)
Recent data may be incomplete.
30
20
10
Unvaccinated
Citywide
Vaccinated
07/04
07/11
07/18
07/25
08/01
08/08
08/15
08/22
08/29
09/05
09/12
09/19

25. People who have recovered from COVID-19 should be vaccinated because research has not yet shown how long protection lasts following recovery and people who have had COVID can still benefit from the vaccine.[10] Moreover, the COVID-19 vaccine has been shown to offer those persons with a prior COVID-19 infection greater protection against reinfection.[11]

26. Widespread vaccination will reduce the number of cases and the number of severe illness and deaths. A population that is 100% vaccinated will be protected against outbreaks and surges in hospitalizations; however, we do not know the exact level below 100% that is sufficient. This threshold (known as the "population immunity" or "herd immunity" threshold) goes up the more infectious the virus is. With the Delta variant, it is likely that the threshold is greater than 90%, but further research and observation of real-world data is needed before we can be certain. The scientific consensus is also that widespread vaccination would also delay, or possibly prevent, the emergence of more dangerous variants, because the fewer people that are infected, the fewer opportunities there are for the virus to mutate and spread.

27. Vaccination benefits both vaccine recipients and those with whom they come into contact, including individuals who are ineligible for the vaccine. A vaccinated person has a lower risk of acquiring infection than an unvaccinated person, and, therefore, a vaccinated person is at substantially lower risk of spreading infection to household members and the community. If a vaccinated person is infected, even with the Delta variant, emerging evidence indicates that they are less likely to infect other people, because they are infectious to others for

[10] CDC Website, Frequently Asked Questions About COVID-19 Vaccination, available at: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html (last visited Sept. 22, 2021).

[11] CDC Website, New CDC Study: Vaccination Offers Higher Protection than Previous COVID-19 Infection, available at: https://www.cdc.gov/media/releases/2021/s0806-vaccination-protection.html (last visited Sept. 22, 2021).

fewer days than an unvaccinated person.[12] The benefit of having a fully vaccinated population is that risk is exponentially reduced. In an indoor setting, the risk of transmitting COVID-19 is the risk that person A is infected and contagious with COVID-19 *multiplied* by the risk of person B being infected if they are exposed to the first person. Vaccination reduces both probabilities: the probability that person A entering the facility is infectious to others and the probability that exposure to COVID-19 will lead to persons B and other persons C, D, E, etc. being infected.

28. The percentage of New York City Residents fully vaccinated is 63.8%; the total percentage that have received at least one dose is 70.8%.[13] This total includes all residents, including those who may not be eligible due to age or, in very rare situations, medical condition.[14] It is necessary to consider the population as a whole, because individuals who are not eligible for the vaccine can contract and transmit the virus. As a result, population immunity depends upon all eligible individuals becoming vaccinated.

29. On July 17, 2021, the 7-day daily average vaccination rates in the City were 17,329 individuals. On August 17, 2021, when the Key 2 NYC went into effect, the 7-day daily average vaccination rates in the City rose to 22,703 individuals and continued to rise through September.[15]

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[12] Po Ying Chia, Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine-breakthrough infections: a multi-center cohort study, MEDRXIV (July 31, 2021), available at: https: /www.medrxiv.org/content/10.1101/2021.07.28.21261295v1.full-text.

[13] DOHMH, COVID-19 Data, Vaccines, available at: https://www1.nyc.gov/site/doh/covid/covid-19-data-vaccines.page (last visited Oct. 4, 2021)

[14] There are only two medical contraindications to the vaccines, which are rare. https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#Contraindications. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/safety-of-vaccines.html (both last visited Oct. 1, 2021)

[15] DOHMH, COVID-19 Data, Vaccines, available at: https://www1.nyc.gov/site/doh/covid/covid-19-data-vaccines.page (last visited Oct. 1, 2021)

30. Earlier this summer, vaccination rates were much lower among young adults. According to a CDC paper, adults aged 18-24 were least likely to report having received a COVID-19 vaccination.[16] Likewise, New York City Department of Health and Mental Hygiene data shows that earlier this summer, individuals aged 18-34 years had the lowest vaccination rate of those eligible.[17]

31. A recent CDC study shows that the prime motivators for getting vaccinated among adults aged 18-39 years are a desire to protect others and a desire to resume social activities.[18]

32. In addition, prior to developing the Key to NYC program, New York City conducted research into the motivators for vaccination. A majority of people reported that they would be motivated to be vaccinated for the ability "to go out to restaurants, the gym, and return to normal activities." See Global Strategy Group, May Coronavirus Poll Findings, at p. 24, appended hereto. Similarly, 38% of people reported they would be motivated "a lot" to get vaccinated if it were required to attend sporting events and concerts, with an additional 20% reporting they would be motivated "some." Id. at p. 26

33. Among those people who were hesitant to get vaccinated, 20.8% said the ability to resume normal social activities would motivate them to get vaccinated. See Baack, id.

34. Individuals aged 18-34 years make up the demographic of people who most frequent restaurants and many types of entertainment venues. Specifically, according to the

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[16] See Brittney N. Baack, COVID-19 Vaccination Coverage and Intent Among Adults Aged 18–39 Years — United States, March–May 2021, 70 MORBIDITY AND MORTALITY WEEKLY REPORT 928 (June 25, 2021), available at: cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e2-H.pdf.

[17] See https://github.com/nychealth/covid-vaccine-data/blob/ed96c6f44c455c63c735def5ac159f1584feb7b5/people/coverage-by-demo.csv.

[18] See Baack.

National Restaurant Association, prior to the pandemic, 18-24 year olds went out for dinner at a higher rate than any other age group.[19] Similarly, individuals aged 25-39 made up the highest percentage of frequent moviegoers.[20]

THE KEY TO NYC DIRECTIVES PROVIDE AN APPROPRIATE PUBLIC HEALTH STRATEGY

35. Based on my experience with infectious disease control principles, the guidelines set forth in the Key to NYC program are important components of a multi-level approach to increasing vaccination rates in New York City, with special attention to a key demographic, and with overall efforts to reduce the spread of COVID-19.[21]

36. Requiring vaccination of employees and patrons of in-person indoor activities at covered entertainment and dining venues properly reflects the pressing need to increase vaccination rates among eligible individuals as increasing vaccination overall will help to curb the spread and mutation of the virus and prevent the potential need to close non-essential businesses again, should severe cases rise to levels where hospitalizations are overwhelming healthcare resources as they did at the start of the pandemic in 2020. In particular, New York City residents 18-39 years old are less likely to be vaccinated than those of other eligible age groups and are also

[19] See A Look Back at Consumers' Restaurant Usage Over the Past Year, available at https://restaurant.org/articles/news/a-look-back-at-restaurant-usage-during-pandemic (last visited Sept. 22, 2021).

[20] See Motion Pictures Association Theme Report 2019 at pp. 28-29, available at: motionpictures.org/wp-content/uploads/2020/03/MPA-THEME-2019.pdf (last visited Sept. 22, 2021).

[21] Other efforts to increase vaccinations have included giveaways, the City has issued giveaways and also initiated a program to provide $100 to organizations who refer individuals to vax4nyc sites for vaccination and a program to pay $100 to individuals who receive their first dose at a vax4nyc sites. See NYC COVID-19 Citywide Information Portal, COVID-19 Vaccine Incentives, available at https://www1.nyc.gov/site/coronavirus/vaccines/vaccine-incentives.page (last visited Sept. 22, 2021). The City is also requiring that City and school employees obtain the COVID-19 vaccine.

more likely to patronize entertainment and dining venues, such that requiring vaccination prior to engaging in these activities is likely to increase overall vaccination rates.

37. Requiring vaccination to use the services of covered entities will make indoor spaces (and other spaces) safer as more people get vaccinated by reducing the number of people at risk for either spreading or contracting the virus in these spaces. Put differently, it reduces both the probability of people being exposed to the virus and, if they are exposed, the risk of being infected and becoming severely ill.

38. This is important because indoor dining and entertainment venues also present an increased risk of spreading a virus, because they involve large groups of unrelated individuals in close proximity for a period of hours.

39. Indoor congregate dining, by its very nature, presents two inherent increased risk factors for COVID-19 transmission: it occurs in a riskier setting (indoors) and involves riskier behavior (removal of face coverings in order to eat and drink), eliminating one of the effective tools in preventing transmission. Similarly, entertainment venues such as theaters, concert and event facilities, and other indoor recreational venues also involve large numbers of people from many different households, arriving and departing at a similar time, spending substantial time indoors and in close proximity. Again, as more New Yorkers obtain vaccinations, the risk of transmission and contraction of the virus in these locations is reduced.

40. Moreover, the presence of the Delta strain in New York City and the emergence of other dangerous strains globally makes it all the more urgent that New York City retain and develop essential measures to prevent COVID-19 infections whenever possible. The more infections that occur, the more likely it is that new strains will spread or evolve. Notably, the highly transmissible Delta variant has been rapidly increasing the number of new infections.

On July 1, 2021, the seven day average of new cases was 234, then increased to 1,491 by August 1, 2021 as the Delta variant became dominant and New Yorkers increased their level of social contact.

41. The measures set forth in the Key to NYC program are intended to not only increase overall vaccination rates Citywide but, over time, as people become fully vaccinated are also aimed at protecting the participants and staff at these establishments, further preventing outbreaks and, thus, protecting against the spread of COVID-19 to the communities served by these venues and the communities in which the patrons live and travel.

42. Every New Yorker (and every American), has been socially, emotionally and economically impacted by the virus and the necessary restrictions imposed to mitigate it. New York City has carefully reopened, balancing the desire and need to return to pre-COVID-19 life with the reality that the virus is still active, and is experiencing a resurgence.

43. Reduction of COVID-19 infections will also reduce demand on the medical infrastructure, avoid longer-term economic impacts from large numbers of people who are infected or fear infection, and the potential need to close or restrict non-essential businesses further if transmission increases substantially.

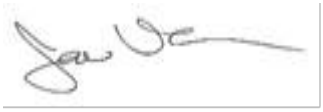
RISKS IF VACCINATION RATES ARE NOT INCREASED

44. If vaccination rates are not increased, more drastic policy steps may be necessary due to surges in severe illness as is being observed in many states, such as Florida, Texas, Alabama, and Mississippi. In those states, Delta infections have spread rapidly among adults and children, overwhelming hospitals. Given that over 2.4 million New York City residents remain unvaccinated, widespread Delta infections could similarly tax the healthcare system and lead

policy makers to institute restrictions similar to those in 2020 to prevent healthcare system overload and widespread death.

45. A 2020 Ford Foundation/McKinsey Report modeled what a virus resurgence could mean for restaurants in the City The report concluded that a virus resurgence would result in 25-40% revenue decline among restaurants depending upon the effectiveness of responses to the resurgence, and that the restaurant industry would likely not recover before 2023.[22]

Dated: New York, New York
October 5, 2021



JAY VARMA, M.D.

[22] Ford Foundation, Reimagining a Sustainable Restaurant Industry in New York, pp. 48-50, available at: reimagining-a-sustainable-restaurant-industry-in-new-york.pdf (last visited Sept. 22, 2021).